Teaching the DART Risk Management Case Study

The DART Risk Management Case Study was uploaded to ICE and NSC KN in December 2011. The links to this case are shown below:

https://ice.exploration.nasa.gov/ice/filestore/kbr_videos/cs/DART/dart.html

https://nsckn.nasa.gov/Database/166/Case%20Studies/DART/dart.html

DART Teaching Notes

The DART Case study is available as a resource for individual study or instructor-led workshop with large/small group interaction.

Intended Audience: The DART case study provides insights for Human Exploration & Operations (HEO) Mission Directorate programs (Space Launch System, Multi-Purpose Crew Module, Commercial Crew and Cargo) confronting development, design verification and system-level testing challenges as well as technology development managers in both HEO and the Office of Chief Technologist (OCT).

Introduction: The case explores risk management in an environment of changing expectations. Risk issues abound as the program is set in motion with a technology development management orientation - limited staff, funding, oversight and few systems engineering control processes. In response to deficiencies (risks) identified at the critical design review, and with the infusion of funding for additional testing, the expectations for mission success increased by large measure.

 Learning Objectives: Develop and understanding and recognition of the:

- Importance of aligning project requirements, contractual requirements, Agency risk expectations, and Government assurance processes and oversight
- Importance of early requirements definition
- Importance of documenting changes
- Importance of providing resources (staffing, funding, schedule) commensurate with changes in risk posture.

General Questions Participants Should Explore:

Could analogous issues arise in my present endeavor or future projects? How can I recognize a shifting risk management environment? How might I respond to such challenges? What is the appropriate balance between risk taking in technology development activities and the need for mission assurance and control?

Instructor Preparation: One-Week Prior To Teaching Case

1. Review all DART case material with special attention to text case, epilogue, and web-based charts (includes videos and voice-over narration)

2. One week, but no later than 24 hours before event, distribute via email the text case (not epilogue) to prospective participants.

- Welcome / Logistics (5 min)
    - o Assign individuals to groups of 5-8 (max)
    - o Assign Team Captains

- Present web-based Case (nominally 40 min) although one may wish to scale back or tailor the number of charts

- Present exercise introduction (3 min)

- Small group table discussion and develop charts (20-30 min)
    - o Structured Brainstorming
    - o Fishbone / Flip-Chart Capture

- Plenary Configuration: Report-out and facilitated large group discussion (15 min)

- Distribute Epilogue – Present Multimedia Epilogue (7 min)

- Plenary discussion (15 minutes)